

WHAT IS CLAIMED IS:

1. A communication control method used in
a cellular mobile communication system in which each
5 base station can radiate radio wave beams to a
plurality of directions and each base station
communicates with mobile stations by using the same
frequency by radiating radio wave beams to the
mobile stations, said method comprising the steps
10 of:

controlling first timing at which a base
station radiates a first radio wave beam such that
said first timing is different from second timing at
which another base station radiates a second radio
15 wave beam which may cause interference with said
first radio wave beam.

20 2. The communication control method as
claimed in claim 1, said method comprising the steps
of:

predetermining other base stations for
25 which interference caused by radio wave beams
radiated by a base station should be considered;

notifying said base station of directions
and radiation timing of radio wave beams radiated by
said other base stations;

30 controlling said base station on the basis
of said directions and radiation timing such that
timing at which said base station radiates radio
wave beams is different from timing at which said
other base stations radiate radio wave beams which
35 may cause interference with radio wave beams
radiated by said base station.

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3. The communication control method as
5 claimed in claim 2, wherein said each of other base
stations is an adjacent base station to said base
station.

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4. The communication control method as
claimed in claim 1, said method comprising the step
of:

15 when a base station which communicates
with a mobile station switches a radiating radio
wave beam from a first radio wave beam to a second
radio wave beam as said mobile station moves,
controlling said base station such that timing at
20 which said first radio wave beam is radiated is
different from timing at which said second radio
wave beam is radiated.

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5. The communication control method as
claimed in claim 1, said method comprising the step
of:

30 when a radio wave beam which is radiated
by a base station covers a plurality of mobile
stations, controlling said base station such that
timing at which said radio wave beam is radiated is
different for each mobile station.

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6. The communication control method as claimed in claim 1, said method comprising the step of:

5 controlling timing of a radio wave beam at which a base station radiates such that said radio wave beam is radiated for a mobile station in a plurality of time slots at predetermined intervals.

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7. The communication control method as claimed in claim 6, wherein the number of said time
15 slots is determined on the bases of communication state in said base station.

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8. The communication control method as claimed in claim 1, said method comprising the steps of:

25 when a received level in a mobile station for a signal by a radio wave beam come from a base station directly is lowered, said mobile station directing a radio wave beam to a direction from which another radio wave beam comes, said another radio wave beam having the best receiving quality
30 among other radio wave beams arriving at said mobile station from said base station, and said mobile station requesting allocation of a time slot for said another radio wave beam; and

35 said base station allocating said time slot such that said time slot is different from timing at which other base stations radiate radio wave beams which may cause interference with said

another radio wave beam.

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9. The communication control method as claimed in claim 1, said method comprising the steps of:

10 a mobile station receiving a signal by a first radio wave beam from a direction of a base station,

15 said mobile station directing a radio wave beam to a direction from which a second radio wave beam comes, said second radio wave beam being radiated by said base station and arriving at said mobile station;

said mobile station requesting allocation of a time slot for said second radio wave beam;

20 said base station allocating said time slot such that said time slot is different from timing at which other base stations radiate radio wave beams which may cause interference with said second radio wave beam; and

25 said mobile station combining a received signal by said first radio wave beam and a received signal by said second radio wave beam.

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10. The communication control method as claimed in claim 1, said method comprising the steps of:

35 when a received level in a base station for a signal by a radio wave beam come from direction of a mobile station is lowered, said base station directing a radio wave beam to a direction

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from which another radio wave beam comes to keep a path, said another radio wave beam having the best receiving quality among other radio wave beams arriving at said base station from said mobile station.

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11. The communication control method as claimed in claim 1, said method comprising the steps of:

when a received level in a mobile station for a signal by a radio wave beam come from a base station directly is lowered, said mobile station selecting another radio wave beam, said another radio wave beam having the best receiving quality among other radio wave beams arriving at said mobile station from said base station, and said mobile station requesting allocation of a time slot for said another radio wave beam; and

said base station allocating said time slot such that said time slot is different from timing at which other base stations radiate radio wave beams which may cause interference with said another radio wave beam.

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12. The communication control method as claimed in claim 1, said method comprising the steps of:

a mobile station receiving a signal by a first radio wave beam from a direction of a base station,

said mobile station requesting allocation of a time slot for a second radio wave beam, said second radio wave beam being radiated by said base station and arriving at said mobile station;

5 said base station allocating said time slot such that said time slot is different from timing at which other base stations radiate radio wave beams which may cause interference with said second radio wave beam; and

10 said mobile station combining a received signal by said first radio wave beam and a received signal by said second radio wave beam.

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13. A communication control apparatus in a cellular mobile communication system which controls communication between each base station and a mobile station in which each base station can radiate radio wave beams to a plurality of directions and each base station communicates with mobile stations by using the same frequency by radiating a radio wave beam to the mobile station, said apparatus

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25 comprising:

 a timing control part for controlling first timing at which a base station radiates a first radio wave beam such that said first timing is different from second timing at which another base station radiates a second radio wave beam which may cause interference with said first radio wave beam.

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14. A mobile station in a cellular mobile communication system in which each base station

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radiates a radio wave beam to a mobile station and each base station communicates with a mobile station by using the same frequency, said mobile station comprising:

- 5 a part for, when a received level in a mobile station for a signal by a radio wave beam coming from a base station directly is lowered, directing a radio wave beam to a direction from which another radio wave beam comes, and requesting
10 allocation of a time slot for said another radio wave beam, said another radio wave beam having the best receiving quality among other radio wave beams arriving at said mobile station from said base station;
- 15 wherein said base station allocates said time slot such that said time slot is different from timing at which other base stations radiate radio wave beams which may cause interference with said
20 another radio wave beam.

15. A mobile station in a cellular mobile
25 communication system in which each base station radiates a radio wave beam to a mobile station and each base station communicates with a mobile station by using the same frequency, said mobile station comprising:

- 30 a part for receiving a signal by a first radio wave beam from a direction of a base station, and directing a radio wave beam to a direction from which a second radio wave beam comes, said second radio wave beam being radiated by said base station
35 and arriving at said mobile station;

 a part for requesting allocation of a time slot for said second radio wave beam;

a part for combining a received signal by
said first radio wave beam and a received signal by
said second radio wave beam after said base station
allocates said time slot such that said time slot is
5 different from timing at which other base stations
radiate radio wave beams which may cause
interference with said second radio wave beam.

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